

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION



MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No.: MO-0054623

Owner: City of Troy
Address: 200 Main Street, Troy, MO 63379

Continuing Authority: Same as above
Address: Same as above

Facility Name: Troy Wastewater Treatment Plant
Address: East Highway 47, Troy, MO 63379

Legal Description: See page 2

Receiving Stream & Basin: See page 2
First Classified Stream and ID: See page 2
USGS Basin & Sub-watershed No: See page 2

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

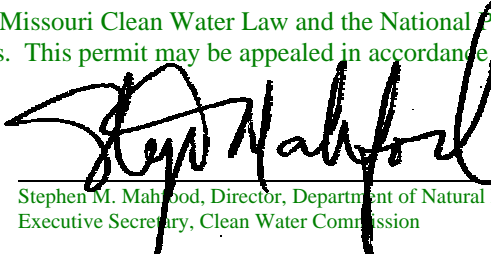
FACILITY DESCRIPTION

See page 2

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

August 27, 1999 September 5, 2003
Effective Date Revised

August 26, 2004
Expiration Date
MO 780-0041 (10-93)



Stephen M. Mahood, Director, Department of Natural Resources
Executive Secretary, Clean Water Commission

Mohamad Alhalabi, P.E., Director, St. Louis Regional Office

LEGAL DESCRIPTION & RECEIVING STREAM (continued)

Outfall #001

discontinued, moved to #003

Outfall #002

Legal Description:	SW ¼, NE ¼, NE ¼, Sec. 30, T49N, R1E, Lincoln County
Receiving Stream:	Cuivre River (P)
First Classified Stream and ID:	Cuivre River (P)(00152)
USGS Basin & Sub-watershed No.:	(07110008-050002)

Outfall #003

Legal Description:	NE ¼, SE ¼, NW ¼, Sec. 30, T49N, R1E, Lincoln County
Receiving Stream:	Town Branch (U)
First Classified Stream and ID:	Cuivre River (P)(00152)
USGS Basin & Sub-watershed No.:	(07110008-050002)

FACILITY DESCRIPTION (continued)

Outfall #001

discontinued, moved to #003

Outfall #002 - POTW - SIC #4952

Wet weather holding basin/peak flow settling basin/primary treatment.
Design flow is 2.88 MGD.

Outfall #003 - POTW - SIC #4952

This is the main outfall.

Influent lift station/extended aeration/breakpoint chlorination/dechlorination/sludge digestion/sludge land application/sludge disposal is by contract hauler.

Design population equivalent is 13,000.

Design flow is 1.3 MGD.

Actual flow is 1.0 MGD.

Design sludge production is 234 dry tons/year.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 3 of 9	
					PERMIT NUMBER MO-0054623	
The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited and monitored by the permittee as specified below:						
OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #002 - Stormwater</u> (Note 1)						
Flow	MGD	*		*	once/day	24 hr. total
Biochemical Oxygen Demand ₅	mg/L		45		once/week	grab
Total Suspended Solids	mg/L		45		once/week	grab
pH - Units	SU	**		**	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>September 28, 1999</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
B. STANDARD CONDITIONS						
IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS					PAGE NUMBER 4 of 9	
					PERMIT NUMBER MO-0054623	
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		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
<u>Outfall #003</u>						
Flow	MGD	*		*	once/day	24 hr. total
Total Suspended Solids***	mg/L		45	30	once/week	24 hr. composite
pH - Units	SU	**		**	once/week	grab
Fecal Coliform (Note 2)	#/100mL	1000		400	once/week	grab
Total Residual Chlorine (Notes 3 & 4)	mg/L	0.01		0.01	once/week	grab
Ammonia as N						
June 1 - Sept. 30	mg/L	2		2	once/week	grab
October 1 - May 31	mg/L	3		3	once/week	grab
Carbonaceous Biochemical Oxygen Demand ₅ ***						
June 1 - Sept. 30	mg/L	10		10	once/week	24 hr. composite
October 1 - May 31	mg/L	15		15	once/week	24 hr. composite
Oil and Grease	mg/L	15		10	once/week	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>MONTHLY</u> ; THE FIRST REPORT IS DUE <u>September 28, 1999</u> .						
Copper, Total Recoverable	mg/L	0.029			once/quarter****	24 hr. composite
Lead, Total Recoverable	mg/L	0.02			once/quarter****	24 hr. composite
Zinc, Total Recoverable	mg/L	0.345			once/quarter****	24 hr. composite
Phenols, Total	mg/L	0.1			once/quarter****	grab
MONITORING REPORTS SHALL BE SUBMITTED <u>QUARTERLY</u> ; THE FIRST REPORT IS DUE <u>January 28, 2000</u> .						
Whole Effluent Toxicity (WET) Test	% Survival	See Special Condition #5			once/year in September	24 hr. composite
MONITORING REPORTS SHALL BE SUBMITTED <u>ANNUALLY</u> ; THE FIRST REPORT IS DUE <u>October 28, 2000</u> . THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.						
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IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED <u>Parts I, II & III</u> STANDARD CONDITIONS DATED <u>October 1, 1980 and August 15, 1994</u> , AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.						

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

* Monitoring requirement only.

** pH is measured in pH units and is not to be averaged. The pH is limited to the range of 6.0-9.0 pH units.

*** This facility is required to meet a removal efficiency of 85% or more.

**** Sample once per quarter in the months of March, June, September, and December.

Note 1 - Only the wastewater in excess of the continuous wastewater treatment plant hydraulic capacity may be discharged through outfall #002.

Note 2 - Final limitations and monitoring requirements for Fecal Coliform are applicable only during the recreational season from April 1 through October 31.

Note 3 - This permit contains a Total Residual Chlorine (TRC) limit.

a. If the TRC limit in this permit is 0.01 mg/L or 0.2 mg/L, you must use an analytical method that has a quantification limit of no greater than 0.05 mg/L TRC. For reporting purposes on the discharge monitoring report (DMR), all analytical values below 0.05 mg/L shall be reported as "<quantlim." All analytical values at or above the quantification limit of 0.05 mg/L shall be reported as the measured value. The permittee shall report the quantification limit in the remarks section of the DMR.

The average monthly effluent values for TRC will be determined by assuming that analytical results below the quantification limit are equivalent to 0 mg/L when calculating the monthly average.

The daily effluent value will be considered equal to 0 mg/L if it is below the quantification limit.

b. If no chlorine was used in a given sampling period, an actual analysis is not necessary. Simply report as "0 mg/L" TRC.

Note 4 - This treatment facility is designed to provide advanced treatment by the use of breakpoint chlorination. Chlorination may occur all months of the year.

C. SPECIAL CONDITIONS

1. This permit may be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C), and (D), 304(b)(2) and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

- (a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
- (b) Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

2. All outfalls must be clearly marked in the field.

3. Permittee will cease discharge by connection to areawide wastewater treatment system within 90 days of notice of its availability.

4. This permit may be reopened and modified or alternatively revoked and reissued, to incorporate new or modified effluent limitations or other conditions, if the result of a wasteload allocation study, toxicity test, or other information indicates changes are necessary to ensure compliance with Missouri's Water Quality Standards.

5. Whole Effluent Toxicity (WET) tests will be conducted as follows:

SUMMARY OF WET TESTING FOR THIS PERMIT				
OUTFALL	A.E.C. %	FREQUENCY	SAMPLE TYPE	MONTH
#003	100%	once/year	24 hr. composite	September

a. Test Schedule and Follow-Up Requirements

- (1) Perform a single-dilution test in the months and at the frequency specified above.

If the test passes the effluent limit do not repeat test until the next test period. Submit results with the annual report.

If the test fails the effluent limit a multiple dilution test shall be performed within 30 days, and biweekly thereafter until one of the following conditions are met:

- (a) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.
- (b) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL.

- (2) The permittee shall submit a summary of all test results for the test series to the Planning Section of the WPCP, DNR, Box 176, Jefferson City, MO within 14 days of the third failed test. DNR will contact the permittee with initial guidance on conducting a toxicity identification evaluation (TIE) or toxicity reduction evaluation (TRE). The permittee shall submit a plan for conducting a TIE or TRE to the Planning Section of the WPCP within 60 days of the date of DNR's letter. This plan must be approved by DNR before the TIE or TRE is begun. A schedule for completing the TIE or TRE shall be established in the plan approval.

C. SPECIAL CONDITIONS (continued)

5. Whole Effluent Toxicity (WET) test (continued)

- (3) Upon DNR's approval, the TIE/TRE schedule may be modified if toxicity is intermittent during the TIE/TRE investigations. A revised WET test schedule may be established by DNR for this period.
- (4) If a previously completed TIE has clearly identified the cause of toxicity, additional TIEs will not be required as long as effluent characteristics remain essentially unchanged and the permittee is proceeding according to a DNR approved schedule to complete a TRE and reduce toxicity. Regularly scheduled WET testing as required in part b.(1) will be required during this period.
- (5) In addition to the WET test summary report required in part (2), all failing test results shall be reported to DNR within 14 days of the availability of results.
- (6) All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

b. PASS/FAIL procedure and effluent limitations

- (1) To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.
- (2) To pass a multiple-dilution test:
 - (a) the computed percent effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,
 - (b) all dilutions equal to or greater than the AEC must be nontoxic. Failure of one multiple-dilution test is considered an effluent limit violation.

c. Test Conditions

- (1) Test species: *Ceriodaphnia dubia* and fathead minnows, *Pimephales promelas*. Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.
- (2) Test period: 48 hours at the "Acceptable Effluent Concentration" (AEC) specified above.
- (3) When dilutions are required, upstream receiving stream water will be used as dilution water. If upstream water is unavailable or if mortality in the upstream water exceeds 10%, "reconstituted" water will be used. Procedures for generating reconstituted water will be supplied by the Department of Natural Resources (DNR).
- (4) Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after collection.

C. SPECIAL CONDITIONS (continued)

5. Whole Effluent Toxicity (WET) test (continued)

(5) Single-dilution tests will be run with:

- (a) Effluent at the AEC concentration;
- (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
- (c) reconstituted water.

(6) Multiple-dilution tests will be run with:

- (a) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC.
- (b) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
- (c) reconstituted water.

(7) If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

6. Report as no-discharge when a discharge does not occur during the report period.

7. General Criteria. The following water quality criteria shall be applicable to all waters of the state at all times including mixing zones. No water contaminant, by itself or in combination with other substances, shall prevent the waters of the state from meeting the following conditions:

- (a) Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses;
- (b) Waters shall be free from oil, scum and floating debris in sufficient amounts to be unsightly or prevent full maintenance of beneficial uses;
- (c) Waters shall be free from substances in sufficient amounts to cause unsightly color or turbidity, offensive odor or prevent full maintenance of beneficial uses;
- (d) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life;
- (e) There shall be no significant human health hazard from incidental contact with the water;
- (f) There shall be no acute toxicity to livestock or wildlife watering;
- (g) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community;
- (h) Waters shall be free from used tires, car bodies, appliances, demolition debris, used vehicles or equipment and solid waste as defined in Missouri's Solid Waste Law, section 260.200, RSMo, except as the use of such materials is specifically permitted pursuant to section 260.200-260.247.

8. Sludge and Biosolids Use For Domestic Wastewater Treatment Facilities

- (a) Permittee shall comply with the pollutant limitations, monitoring, reporting, and other requirements in accordance with the attached permit Standard Conditions.

9. This treatment facility is required to be operated by a person having a wastewater competency certificate of at least a "B" level.

10. The permittee shall submit an Inflow & Infiltration report twice a year with the August and February Discharge Monitoring Reports. The report shall address measures taken to eliminate sources of inflow and infiltration into the City's Collection system.

SUMMARY OF TEST METHODOLOGY FOR WHOLE-EFFLUENT TOXICITY TESTS

Whole-effluent-toxicity test required in NPDES permits shall use the following test conditions when performing single or multiple dilution methods. Any future changes in methodology will be supplied to the permittee by the Missouri Department of Natural Resources (MDNR). Unless otherwise specified by MDNR, procedures should be consistent with Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, EPA/600/4-90/027.

Test conditions for Ceriodaphnia dubia:

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light, 8 h dark
Size of test vessel:	30 mL (minimum)
Volume of test solution:	15 mL (minimum)
Age of test organisms:	<24 h old
No. of animals/test vessel:	5
No. of replicates/concentration:	4
No. of organisms/concentration:	20 (minimum)
Feeding regime:	None (feed prior to test)
Aeration:	None
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$)
Test acceptability criterion:	90% or greater survival in controls

Test conditions for (Pimephales promelas):

Test duration:	48 h
Temperature:	25 ± 2°C
Light Quality:	Ambient laboratory illumination
Photoperiod:	16 h light/ 8 h dark
Size of test vessel:	250 mL (minimum)
Volume of test solution:	200 mL (minimum)
Age of test organisms:	1-14 days (all same age)
No. of animals/test vessel:	10
No. of replicates/concentration:	4 (minimum) single dilution method 2 (minimum) multiple dilution method
No. of organisms/concentration:	40 (minimum) single dilution method 20 (minimum) multiple dilution method
Feeding regime:	None (feed prior to test)
Aeration:	None, unless DO concentration falls below 4.0 mg/L; rate should not exceed 100 bubbles/min.
Dilution water:	Upstream receiving water; if no upstream flow, synthetic water modified to reflect effluent hardness.
Endpoint:	Mortality (Statistically significant difference from upstream receiving water control at $p \leq 0.05$)
Test Acceptability criterion:	90% or greater survival in controls